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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,425	02/04/2002	Nicolaas Johannes Anthonius Van Veen	NL 010069	7853
24737	7590	06/24/2004	EXAMINER GEYER, SCOTT B	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			ART UNIT 2829	PAPER NUMBER

DATE MAILED: 06/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,425

Applicant(s)

VAN VEEN ET AL.

Examiner

Scott B. Geyer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 8-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings as amended by the applicant and received on 6-1-04 are acceptable.

Specification / Abstract / Title

2. The amendments to the specification, abstract and title submitted by the applicant are acceptable.

Claim Rejections - 35 USC § 112

3. The claims as amended by the applicant are acceptable to overcome the rejections under 35 USC 112, 2nd paragraph.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al. (6,235,552 B1).

5A. As to **claim 1**, Kwon et al. teach a method of manufacturing a semiconductor device, suitable for surface mounting, wherein the semiconductor body 102 has an active side provided with connection regions (i.e. chip pads) 104 situated at the surface of the chip body. The chip 102 also has electrically insulating mediums 124, 134 and a conductor pattern 122. The connection of the chip 102 to the conductor

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pattern 122 is effected through chip pads 104 and through vias within the insulating medium 124, which are filled with bump material 128. These above features can all be seen in figure 18. Also, Kwon et al. teach a manufacturing process wherein the conductor pattern 122 and insulating layer 124 are formed on a substrate 110, as shown in figure 12. The substrate having the conductor pattern and insulating medium is attached to the chip substrate 102 as seen in subsequent manufacturing process figures 16 and 17. Further still, the substrate 110 is detached as shown by figure 18. Kwon et al. teach the substrate 110 to be a "metal sheet or film" (column 4, lines 1-3). Kwon et al. also teach that the substrate could be a copper sheet (column 4, line 3) and provide a further example of a copper sheet having a thickness of 500 micrometers (column 6, lines 11-14). However, Kwon et al. do not specifically teach the substrate being a "flexible foil". Nevertheless, flexible foils are notoriously well known in the art of semiconductor manufacturing and it would have been obvious to one of ordinary skill in the art to modify the manufacturing method of Kwon et al. to utilize a flexible foil as the removable substrate to allow ease in removal.

5B. As to **claim 2**, Kwon et al. teach vias (126), as seen in figure 12. The chip is attached to the substrate and conductor patterns through these vias, as is seen in subsequent figures. Solder (128) is introduced into the vias in a subsequent step, but prior to the step of attaching the chip to the electrically insulating medium substrate. As can be seen in figure 18, the chip connections (104,108) are electrically connected with the conductor patterns (122, 116) through the solder (128).

5C. As to **claim 8**, Kwon et al. teach a solid photo-resist material (e.g. polyimide) as the electrically insulating medium (124) (see figure 12 and column 4, line 27).

5D. As to **claim 9**, Kwon et al. teach polyimide as the electrically insulating medium (124) (see figure 12 and column 4, line 27) and Kwon et al. also teach copper as the material of the conductor patterns (122) (see figure 12 and column 4, line 23).

5E. As to **claim 10**, the applicant should note that this is merely a product-by-process claim and the method limitations referred to from claim 1 add no patentable weight to the product claim. The applicant has merely claimed a semiconductor device which is suitable for surface mounting. Kwon et al. teach a surface mountable semiconductor device in figure 15.

Allowable Subject Matter

6. Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. *(The applicant is reminded that for proper incorporation of allowable subject matter, the entire claim must be incorporated.)*

The prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention regarding:

the method of utilizing detachably secured substrates, cited as (7) and (9), as recited in claim 3, in combination with the other claimed elements; or

the method of utilizing an electrically insulating fixing agent, cited as (12), which determines the distance between the chip and the flexible foil as recited in claim 5, in combination with the other claimed elements.

/

7. Claims 11 and 12 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter: Claims 11 and 12 have been submitted by the applicant in independent form, and including allowable subject matter as outlined by the examiner in the previous office action.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 2, 3, 5, 8, 9 and 10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and

any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (571) 272-1958. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SBG 6/15/04

SBG
June 15, 2004

David A. Zarneke
David A. Zarneke
Primary Examiner
6/22/04